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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,816	11/17/2003	Kunihiro Tashiro	1117.68737	2176

7590 01/06/2009  
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EXAMINER
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CHEN, LUCY P

ART UNIT	PAPER NUMBER
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2871

MAIL DATE	DELIVERY MODE
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01/06/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/714,816

**Applicant(s)**

TASHIRO ET AL.

**Examiner**

LUCY P. CHIEN

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 October 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 11-16 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 11-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Minoura et al (US 6108064) and of Nakamura et al (US 5061042) in view of Wakita et al (US 6781759)

#### Regarding Claim 11-13.

Minoura et al discloses (fig. 41 and Fig. 48) a reflecting layer (42) for reflecting incident light; a liquid crystal layer (1) provided on the reflecting layer in which alignment of liquid crystal molecules is vertical (Column 13, rows 34-35); and a retardation plate (8 or 9) and a polarizing plate (10) provided on a front surface of the liquid crystal layer (1). Wherein the retardation plate (8)

Minoura et al does not disclose the birefringence in a direction of the thickness nor the value range of  $Rf/Rlc$  and the projection and depression average tilt angles.

Nakamura et al discloses the birefringence in a direction of the thickness (column 3, rows 3-5) a ratio between a retardation  $RF$  (30-1200)(abstract) thereof and a retardation  $Rlc$  is 850 nm (Column 4, rows 34-36) of the liquid crystal layer ,  $Rf/Rlc$  ( $30/850=.03$ ) and ( $1200/850=1.41$ ).It would have been obvious to one ordinary skill in the art at the time of the invention was made to have the retardation  $Rf/Rlc$  value being

a value of not less than 0.6 nor greater than 0.9, or less than 0.5, nor greater than 0.8, or value of not less than 0.4 nor greater than 0.7 since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Wakita et al discloses (Fig. 18e) wherein said reflecting layer has projections (shown in Fig. 18e) and depressions formed on a surface thereof, an average tilt angle of the projections and depressions being a value of  $4^{\circ}$ - $11^{\circ}$ . It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have the projections and depressions being a value of not less than  $4^{\circ}$  nor greater than  $6^{\circ}$ , and not less than  $7^{\circ}$  nor greater than  $9^{\circ}$ , and not less than  $10^{\circ}$  nor greater than  $15^{\circ}$ , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

It would have been obvious to one of ordinary skilled in the art to modify Minoura et al's display to include Nakamura et al's retardation ratio values to include a phase retarder that improves image quality (abstract) and to also include Wakita et al's depression and projection tilt angles motivated by the desire to realize a window type scattering characteristic with a small amount of direction dependency, thereby enabling the provision of bright displays with a wide viewing angle (column 2, rows 47-52).

Regarding Claim 14,

In addition to Minoura et al, Nakamura et al and Wakita et al as disclosed above, Minoura et al discloses (Fig. 53B) wherein where refractive indexes in an x direction, a

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y direction, and a z direction of said retardation plate are  $n_x$ ,  $n_y$ , and  $n_z$  respectively, and a  $N_z$  coefficient is defined such that  $N_z = (n_x - n_z)/(n_x - n_y)$ , the  $N_z$  coefficient of said retardation plate is 1 or less. As shown in Figure 53B  $n_z$  is greater than  $n_y$  which makes  $N_z = (n_x - n_z)/(n_x - n_y)$ , the  $N_z$  coefficient of said retardation plate is 1 or less. Which means that  $n_z \geq n_y$  (Column 37, rows 47-57).

Regarding Claim 15.

In addition to Minoura et al, Nakamura et al and Wakita et al as disclosed above, Minoura et al discloses wherein said retardation plate is made by layering a plurality of uniaxially stretched films (column 37, rows 12-15) which are arranged in layers such that slow axes of the respective uniaxially stretched films are substantially orthogonal.

Regarding Claim 16

In addition to Minoura et al, Nakamura et al and Wakita et al as disclosed above, Minoura et al discloses wherein the liquid crystal molecule of said liquid crystal layer has a negative dielectric constant anisotropy (abstract)

**Response to Arguments**

Applicant's arguments filed 10/20/2008 have been fully considered but they are not persuasive.

Applicant's arguments that "Minoura et al relates to a VA-type of LCD, whilst the plate of Nakamura et al is intended for use in a TN or STN type LCD" is not persuasive. Nakamura et al discloses (Column 7, lines 7-16 and Column 17, lines 14-20) disclose a vertically aligned liquid crystal molecule.

Applicant's arguments that "...the cited references, alone or in combination, fail to disclose or suggest a liquid crystal display device, including inter alia, the claimed retardation plate that has a birefringence in a direction of the thickness.." is not persuasive. Nakamura et al discloses the liquid crystal are vertically aligned and the retardation plate has a retardation in a vertical direction of the substrate. (Column 37, rows 10-50) the Z axis (which is the birefringence in direction of the thickness is perpendicular to the substrate plane. Therefore the rejection is maintained.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUCY P. CHIEN whose telephone number is (571)272-8579. The examiner can normally be reached on M-F 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lucy P Chien  
Examiner  
Art Unit 2871

/David Nelms/  
Supervisory Patent Examiner, Art Unit 2871